

***Botrychium pinnatum* St. John**
St. John's moonwort
Ophioglossaceae (Adder's Tongue Family)

Status: State Watch

Rank: G4?S3

General Description: From Wagner and Wagner (1993): Trophophore stalk 0-1/16 inch, 0 to 1/10 times the length of the trophophore rachis. Blade bright shiny green, oblong-deltate, 1-2 pinnate, to 3¼ by 2 inches, papery. Pinnae to 7 pairs, only slightly ascending, approximate to overlapping. Distance between 1st and 2nd pinnae approximately that between 2nd and 3rd pairs. Basal pinna pair approximately equal in size and cutting to adjacent pair, obliquely ovate to lanceolate-oblong, to spatulate, deeply and regularly lobed or pinulate, lobed to tip, margins entire to very shallowly crenate, apex truncate to somewhat acute, venation pinnate. Sporophores 2-pinnate, 1-2 times the length of the trophophore.

Identification Tips: *Botrychium pinnatum* is quite distinctive, with a lanceolate, sessile blade with segments that are lobed or pinnatifid with a midrib (Wagner 1991). In addition, the base of the common stalk has a warm, reddish color that does not extend to the base of the blade. The species is most similar to *B. pedunculosum*, but the blade of *B. pedunculosum* is pale green with a whitish cast and the blade of *B. pinnatum* is glossy, and dark green.

Phenology: Leaves appear June through August.

Range: Circumboreal; Alaska south to Colorado. Scattered throughout Washington, occurs in the Okanogan Highlands, Eastern Cascades, Western Cascades, and Olympic Peninsula physiographic provinces.

Habitat: Habitats include moist coniferous forests, mossy talus slopes under mixed deciduous and coniferous cover, subalpine meadows, and disturbed areas. Elevation ranges from 1900 to 7300 feet.

Ecology: The taxon is commonly associated with *B. lanceolatum* and *B. lunaria*. *B. pinnatum* has a relatively broad ecological amplitude (see Habitat section above), and can withstand some disturbances.

State Status Comments: There are more than 130 occurrences in Washington, but greater than half of these occurrences have fewer than 10 plants and many only have one plant.

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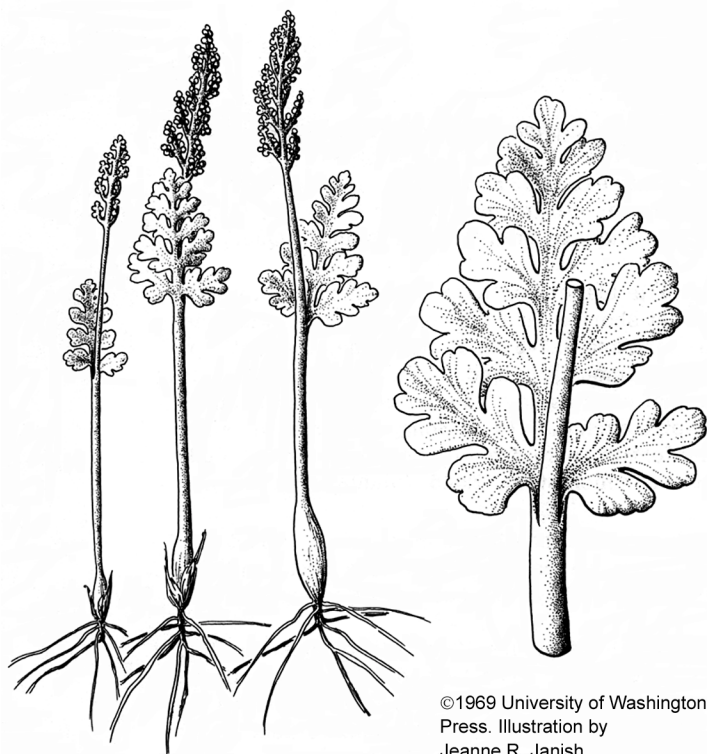
Inventory Needs: Additional inventory is needed throughout the species' range in Washington to better understand its distribution and abundance.

Threats and Management Concerns: Threats to the taxon include grazing, road maintenance, herbicide use, timber harvesting, and recreation (camping and ORV use).

References:

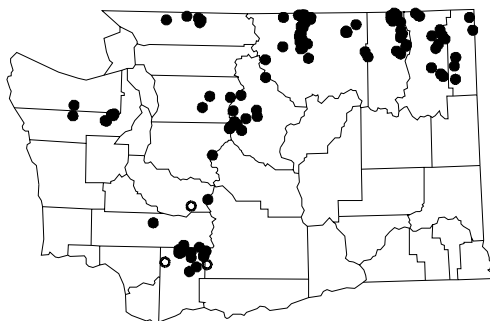
- Lellinger, D.B. 1985. *A Field Manual of the Ferns & Fern-Allies of the United States & Canada*. Smithsonian Institution Press, Washington, D.C.
- Wagner, D. 1991. Guide to the species of *Botrychium* in Oregon. Preliminary draft. Unpublished report. n.p.
- Wagner, W.H. Jr., and F.S. Wagner. 1993. *Flora of North America, Volume 2: Pteridophytes and Gymnosperms*. Treatment of the Ophioglossaceae Family. pp. 85-106.

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Known distribution of
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in Washington



- Current (1980+)
- Historic (older than 1980)

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